A new species of *Megerlina* (Brachiopoda) from the Pleistocene of Zululand, South Africa

by

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(with 3 figures)

ABSTRACT

A new fossil species of the Terebratulacean brachiopod, *Megerlina*, is described from late Pleistocene limestones in the False Bay area of Lake St Lucia, Zululand. It is designated *Megerlina levis* **sp. nov.**

CONTENTS

INTRODUCTION

The present specimens were collected by Dr D. K. Hobday who sent them to the author for identification. They occurred, in local concentrations, within limestones of late Pleistocene (Eemian) age exposed in small outcrops at Lister's Point and Picnic Point on the western shores of the False Bay area of the Lake St Lucia lagoonal complex on the Zululand coastal plain (Fig. 1). Associated with the brachiopods were a variety of corals, gastropods, bivalves and cirripeds as well as echinoderm and sponge fragments and possible crab remains. Vertical tubes with horizontal branches of the ichnogenera *Thalassinoides* and *Ophiomorpha* were also present. The overall fauna and lithology of the enclosing sediments indicate an unrestricted, high energy, shallow marine environment not far from shore, with water temperatures slightly warmer than at present (Hobday, 1976: 103–105).

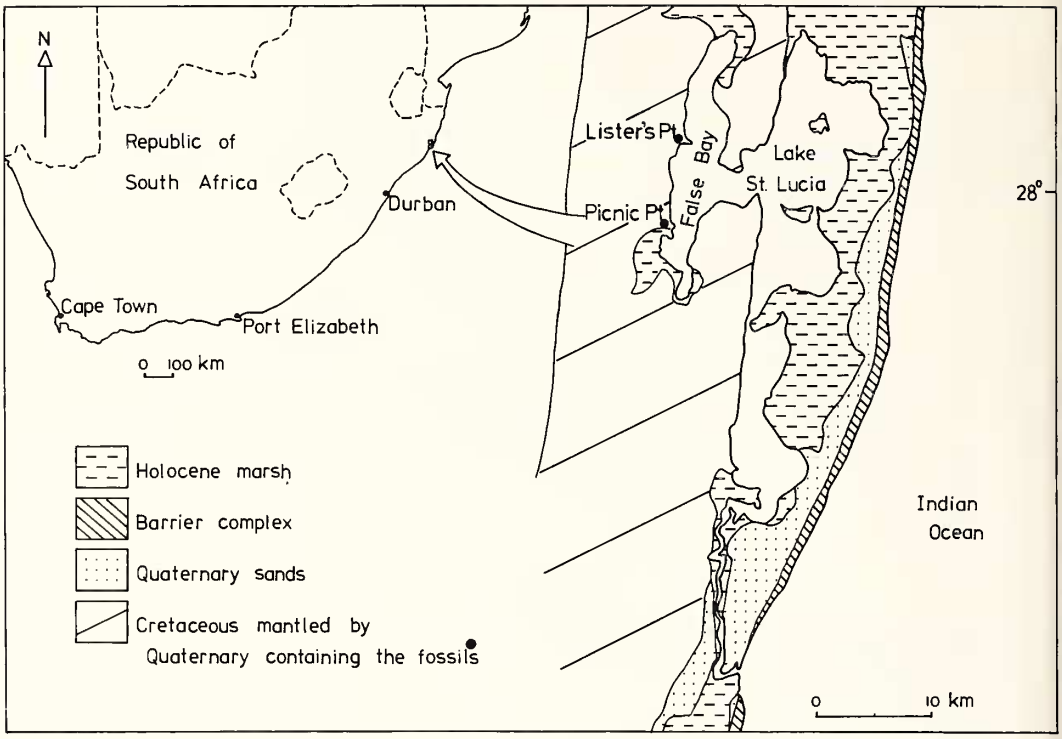

Fig. 1. Map showing location and geology of the Lake St Lucia lagoonal complex (After Hobday 1976).

SYSTEMATIC DESCRIPTION

Class ARTICULATA

Superfamily Terebratulacea King, 1850
Family Kraussinidae Dall, 1870
Genus *Megerlina* Eudes-Deslongchamps, 1884

Type-species: *Kraussia lamarckiana* Davidson, 1852: 80 by original designation.

Megerlina levis **sp. nov.** (Figs. 2, 3)

Type material

Holotype:	AM-4778
Paratype 1:	AM-4779
Paratype 2:	AM-4780
Paratype 3:	AM-4781

The specimens are housed in the Albany Museum, Grahamstown, South Africa.

Diagnosis

Subpentagonal *Megerlina* with carinate pedicle valve and sulcate brachial valve, and lacking any radial ornamentation.

Material and horizon

Fourteen pairs of conjoined valves and fragments of several other pedicle and brachial valves from late Pleistocene deposits on the Zululand coast.

Description

Small ventribiconvex shells of subpentagonal to transversely subcircular outline; maximum width about midvalve; hinge-line width about three-quarters of maximum width; postero-lateral margins (beak ridges) straight, subtending an angle of about 120° at the umbo. Pedicle valve over nine-tenths as long as wide and just over one-third as deep as long. Lateral profile evenly convex; anterior profile convex with narrow, round-topped median fold extending from umbo and separating flat to very gently convex flanks; profile of younger forms more evenly convex, fold not as pronounced. Umbo suberect; pedicle opening submesothyridid. Small, but conspicuous, triangular palintropes developed on either side of delthyrium; deltidial plates narrow.

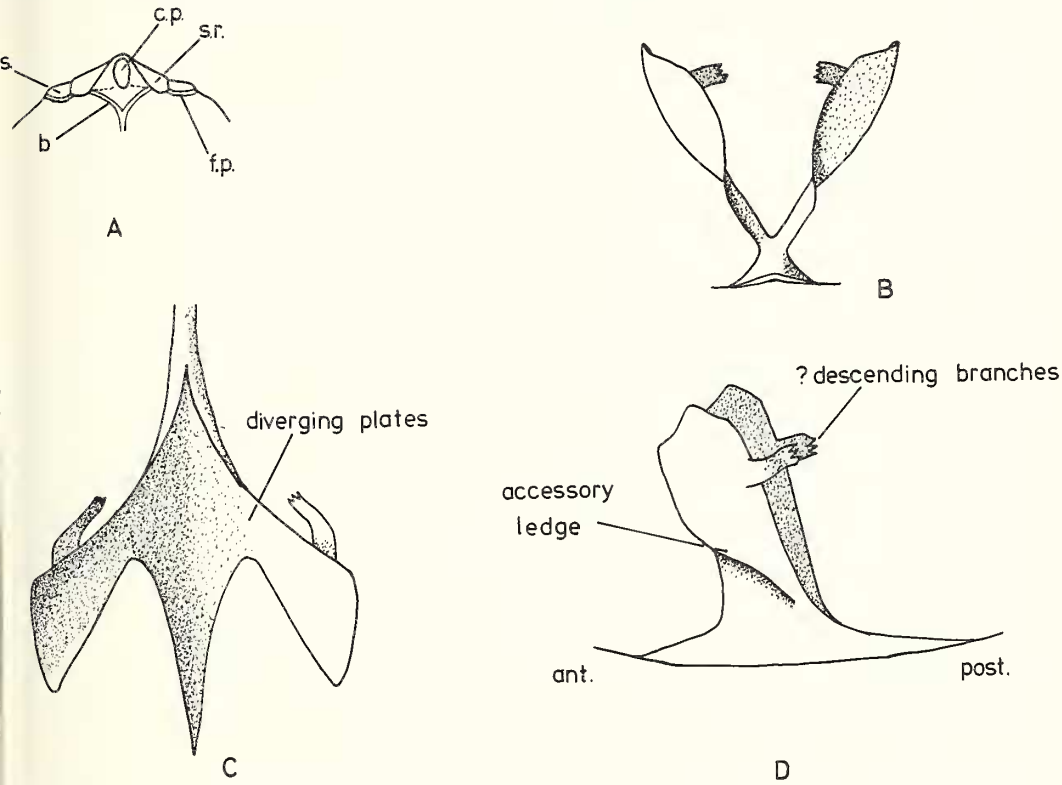

Fig. 2. A. Diagram of the cardinalia of *Megerlina levis* sp. nov. b—buttress; c.p.—cardinal process; f.p.—fulcral plate; s—socket; s.r.—socket ridge; About 5,5 times natural size. B. C. D. Posterior, ventral and lateral views of brachidium. About 12 times natural size.

Brachial valve about four-fifths as long as wide and a little over one-fifth as deep as long. Lateral profile gently convex with maximum convexity near umbo; anterior profile gently convex but with narrow median sulcus which arises at 2 mm growth stage and expands and deepens gradually towards anterior margin. Sulcus of young forms shallower than in adults. Ornamentation of faint concentric growth lines and single prominent growth lamella near anterior margin of some specimens; otherwise shells are smooth. Punctae well seen over whole of shell surface, with density of 120–180 per sq. mm.

Ventral interior with stout hinge teeth without supporting dental plates; pedicle collar very slightly excavate anteriorly. Dorsal interior largely obscured by infilling sediment but one specimen shows weakly developed, elliptical, knob-like cardinal process between strong, widely divergent socket ridges. These are buttressed on their inner sides by a pair of short plates which converge on to valve floor to define notothyrial cavity (Fig. 2A). About mid-valve a low median septum supports a pair of anteroventrally directed diverging plates, which are slightly concave towards one another; each bears a blunt point at the distal end which reaches almost to the floor of the opposite valve and a curved accessory ledge is present on the outside of each plate. From about two-thirds to three-quarters the way up the posterior edge of each plate, a slightly curved prong protrudes (Fig. 2B-D). These prongs have been interpreted as elements of a rudimentary transverse band in the case of the closely related genus *Kraussina* (Elliot 1949: 541) but Thomson (1927: 225), Jackson (1952: 30) and Cooper (1973: 22) think they represent the anterior ends of the descending branches of a loop. However, the posterior ends of such branches have not been described. Details of the musculature are obscured.

Dimensions

		length	width
Holotype:	pair of conjoined valves	13,5 mm	15,3 mm
Paratype 1:	pair of conjoined valves	12,2 mm	13,2 mm
Paratype 2:	fragment of brachial valve	—	—
Paratype 3:	fragment of conjoined valves	—	—

Discussion

The present specimens of *Megerlina* can immediately be distinguished from *M. lamarckiana* (Davidson), from the shallow waters around the south-east coast of Australia, *M. davidsoni* (Vélain) from St Paul Island, and from *M. capensis* (Adams & Reeve) and *M. striata* Jackson, both of which occur off the south-west coast of Cape Province. These modern forms are all distinctly ribbed, although this ribbing may develop upon a smooth early growth stage. Another form which occurs off the South African coast is *M. pisum* (Lamarck) which is described by Jackson (1952: 30) as being nearly smooth but with faint traces of costation; the new species shows no traces of costation and can be further distinguished by its narrower, deeper sulcus. Jackson (1952: 33) ends his discussion of *M. pisum* by noting that the internal characters of the type specimens from Mauritius were unknown to him and that his description was based on South African specimens which he identified by their outward appearance only. He states that if further specimens from Mauritius should prove to differ in their cardinalia and brachidium then the South African shells should be known as *M. natalensis*. However, Cooper (1973: 22) described a *M. natalensis* (Krauss) from the south-east coast of Cape Province, a locality also quoted by Jackson for his *M. pisum*.

In synonymy with *M. natalensis*, Cooper places *Terebratula natalensis* Krauss 1844 and *Terebratula algoensis* Sowerby 1847, two forms which are also included in the synonymy list given by Jackson for *M. pisum*. There appears to be a certain amount of confusion over the identity of these two forms but the shells described by Cooper are quite distinctly ribbed and must be separate from *M. pisum* as well as the specimens described herein.

Smith (1901: 116) records *Kraussina atkinsoni* (Woods) from Algoa Bay but Jackson (1952: 32, 33) regards the specimens as juvenile forms of *M. pisum,* an identification he also gives to a small, smooth sulcate shell with strong growth lamellae, that was dredged off Durban and originally identified as *K. atkinsoni* by G. B. Sowerby. The superficial resemblance of these juvenile forms to *Megerlina levis* sp. nov. tempts one to speculate that the Zululand species may be ancestral to *M. pisum.*

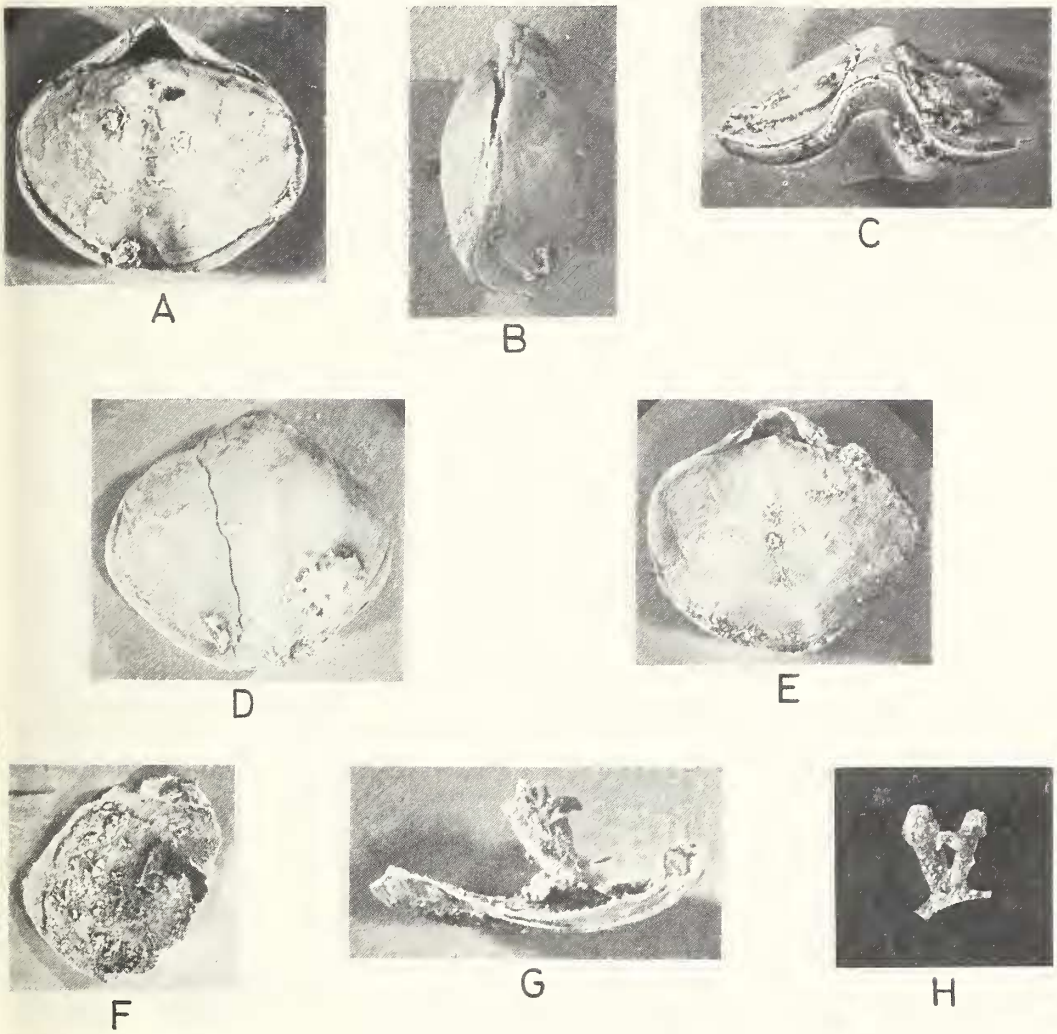

Fig. 3. *Megerlina levis* sp. nov. A, B, C, D. Dorsal, lateral, anterior and ventral views of conjoined valves, Holotype (AM-4778). Respectively × 2,5, × 2,7, × 2,8, × 2,5. E. Dorsal view of conjoined valves, (AM-4779) × 2,7. F, G. Ventral and lateral views of a broken brachial valve interior, (AM-4780). Respectively × 2,7, × 4,1. H. Posterolateral view of brachidium, (AM-4781) × 2,2.

In discussing the generic position of *K. atkinsoni*, Jackson (1952: 32, 33) says that he does not consider it a true *Kraussina* and that it should be removed from that genus. Although it resembled *M. lamarckiana*, Jackson was doubtful whether the species should be included in *Megerlina* without further investigation. However, Hatai (1965: H834) gives the time range for *Megerlina* as Neogene (Tasmania)–Recent and the type specimens of *K. atkinsoni* are from Miocene deposits in southern Tasmania. Thus it seems that *K. atkinsoni* has indeed been transferred to *Megerlina* and, apart from the present specimens, is the only other fossil form of the genus so far recorded. It is a ribbed form and is therefore distinct from *M. levis* sp. nov.

ACKNOWLEDGEMENTS

The author is indebted to Dr Hobday for providing the specimens for study, and to Mr W. Holleman, of the Albany Museum, for his assistance with the photography.

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Manuscript accepted for publication 28 May 1979.